

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

1. (Currently amended): An optical film comprising a transparent polymer film layer and a birefringent layer formed of a non-liquid crystalline polymer that are laminated together, wherein the birefringent layer satisfies ~~a condition~~ conditions represented by the following ~~formula~~ formulas (1) and (2), and the transparent polymer film layer has an in-plane retardation of not more than 50nm:

$$n_x \geq n_y > n_z \quad (1)$$

$$\Delta n(a) > \Delta n(b) \times 10 \quad (2)$$

in the formula (1), n_x , n_y and n_z indicate respectively refractive indices in an X-axis direction, a Y-axis direction and a Z-axis direction in the birefringent layer;

the X-axis direction is a direction showing a maximum refractive index within the plane of the birefringent layer, the Y-axis direction is a direction perpendicular to the X-axis direction within the plane, and the Z-axis direction is a thickness direction and is perpendicular to the X-axis direction and the Y-axis direction, and

in the formula (2), $\Delta n(a)$ indicates a birefringence of the birefringent layer and $\Delta n(b)$ indicates a birefringence of the transparent polymer film layer.

2. (Canceled).

3. (Currently amended): [[The]] An optical film comprising a transparent polymer film layer and a birefringent layer formed of a non-liquid crystalline polymer that are laminated together, wherein the birefringent layer satisfies a condition represented by the following

formula (1), and the transparent polymer film layer has an in-plane retardation of not more than 50 nm, and according to claim 1, wherein a birefringence (Δn) of the entire optical film is in a range of 0.0005 to 0.5:

$$n_x > n_y > n_z \quad (1)$$

in the formula (1), n_x , n_y and n_z indicate respectively refractive indices in an X-axis direction, a Y-axis direction and a Z-axis direction in the birefringent layer;

the X-axis direction is a direction showing a maximum refractive index within the plane of the birefringent layer, the Y-axis direction is a direction perpendicular to the X-axis direction within the plane, and the Z-axis direction is a thickness direction and is perpendicular to the X-axis direction and the Y-axis direction.

4. (Currently amended): The optical film according to claim 1 or 3, wherein the non-liquid crystalline polymer for forming the birefringent layer is at least one kind of polymer selected from the group consisting of polyamide, polyimide, polyester, polyetherketone, polyamideimide and polyesterimide.

5. (Currently amended): The optical film according to claim 1 or 3, wherein a resin for forming the transparent polymer film layer is at least one resin selected from the group consisting of acetate resin, polyester resin, polyethersulfone resin, polysulfone resin, polycarbonate resin, polyamide resin, polyimide resin, polyolefin resin, acrylic resin, polynorbornene resin, cellulose resin, polyarylate resin, polystyrene resin, polyvinyl alcohol resin, polyvinyl chloride resin, polyvinylidene chloride resin, polyacrylic resin, a mixed resin thereof; a liquid crystal polymer; and a mixture of a thermoplastic resin whose side chain has a substituted or unsubstituted imide

group and a thermoplastic resin whose side chain has a substituted or unsubstituted phenyl group and a nitrile group.

6. (Currently amended): The optical film according to claim 1 or 3, wherein the resin for forming the transparent polymer film layer is at least one of triacetylacetate and a mixed resin of an alternating copolymer composed of isobutene and N-methylene maleimide and an acrylonitrile–styrene copolymer.

7. (Currently amended): The optical film according to claim 1 or 3, wherein the transparent polymer film layer is produced by shaping a material resin into a film and stretching.

8. (Currently amended): The optical film according to claim 1 or 3, wherein the transparent polymer film layer is used as a transparent protective film for a polarizing plate.

9. (Currently amended): A polarizing plate comprising an optical film and a polarizer, wherein the optical film is of claim 1 or 3.

10. (Original): The polarizing plate according to claim 9, wherein the transparent polymer film layer of the optical film functions also as a transparent protective film of the polarizing plate.

11. (Previously presented): The polarizing plate according to claim 9, wherein the optical film functions as an optically–compensating layer.

12. (Currently amended): A liquid crystal panel comprising a liquid crystal cell and an optical member, wherein the optical member is disposed on at least one surface of the liquid crystal cell, and is the optical film according to claim 1 or 3.

13. (Original): The liquid crystal panel according to claim 12, wherein the liquid crystal

cell is at least one selected from the group consisting of an STN (Super Twisted Nematic) cell, a TN (Twisted Nematic) cell, an IPS (In-Plane Switching) cell, a VA (Vertical Aligned) cell, an OCB (Optically Compensated Birefringence) cell, a HAN (Hybrid Aligned Nematic) cell, and an ASAM (Axially Symmetric Aligned Microcell) cell.

14. (Previously presented): A liquid crystal display comprising a liquid crystal panel according to claim 12.

15. (Currently amended): A self-light-emitting display comprising the optical film according to claim 1 or 3.

16. (Currently amended): An organic EL display comprising the optical film according to claim 1 or 3.

17. (Currently amended): A method for producing an optical film comprising a transparent polymer film layer and a birefringent layer that are laminated together, the method comprising:

preparing or providing the transparent polymer film having an in-plane retardation of not more than 50 nm;

applying a non-liquid crystalline polymer solution on the transparent polymer film;

evaporating and removing a solvent in the solution so as to form the birefringent layer;

and

adjusting the birefringent layer so as to satisfy ~~a condition~~ conditions represented by the following ~~formula~~ formulas (1) and (2):

$$n_x \geq n_y > n_z \quad (1)$$

$$\Delta n(a) > \Delta n(b) \times 10 \quad (2)$$

in the formula (1), n_x , n_y and n_z indicate respectively refractive indices in an X-axis direction, a Y-axis direction and a Z-axis direction in the birefringent layer; the X-axis direction is a direction showing a maximum refractive index within the plane of the birefringent layer, the Y-axis direction is a direction perpendicular to the X-axis direction within the plane, and the Z-axis direction is a thickness direction and is perpendicular to the X-axis direction and the Y-axis direction, and

in the formula (2), $\Delta n(a)$ indicates a birefringence of the birefringent layer and $\Delta n(b)$ indicates a birefringence of the transparent polymer film layer.

18. (Canceled).

19. (Currently amended): ~~[[The]]~~ A method according to claim 17, wherein for producing an optical film comprising a transparent polymer film layer and a birefringent layer that are laminated together, the method comprising:

preparing or providing the transparent polymer film having an in-plane retardation of not more than 50 nm;

applying a non-liquid crystalline polymer solution on the transparent polymer film;

evaporating and removing a solvent in the solution so as to form the birefringent layer;

and

adjusting the birefringent layer so as to satisfy a condition represented by the following formula (1), and a birefringence (Δn) of the entire optical film is in a range of 0.0005 to 0.5;

$$n_x > n_y > n_z \quad (1)$$

in the formula (1), n_x , n_y and n_z indicate respectively refractive indices in an X-axis direction, a Y-axis direction and a Z-axis direction in the birefringent layer;

the X-axis direction is a direction showing a maximum refractive index within the plane of the birefringent layer, the Y-axis direction is a direction perpendicular to the X-axis direction within the plane, and the Z-axis direction is a thickness direction and is perpendicular to the X-axis direction and the Y-axis direction.

20. (Currently amended): The method according to claim 17 or 19, wherein the non-liquid crystalline polymer for forming the birefringent layer is at least one kind of polymer selected from the group consisting of polyamide, polyimide, polyester, polyetherketone, polyamideimide and polyesterimide.

21. (Currently amended): The method according to claim 17 or 19, wherein a resin for forming the transparent polymer film layer is at least one resin selected from the group consisting of acetate resin, polyester resin, polyethersulfone resin, polysulfone resin, polycarbonate resin, polyamide resin, polyimide resin, polyolefin resin, acrylic resin, polynorbornene resin, cellulose resin, polyarylate resin, polystyrene resin, polyvinyl alcohol resin, polyvinyl chloride resin, polyvinylidene chloride resin, polyacrylic resin, a mixed resin thereof; a liquid crystal polymer; and a mixture of a thermoplastic resin whose side chain has a substituted or unsubstituted imide group and a thermoplastic resin whose side chain has a substituted or unsubstituted phenyl group and a nitrile group.

22. (Currently amended): The method according to claim 17 or 19, wherein the resin for forming the transparent polymer film layer is at least one of triacetylacetate and a mixed resin of

an alternating copolymer composed of isobutene and N-methylene maleimide and an acrylonitrile–styrene copolymer.

23. (Currently amended): The method according to claim 17 or 19, wherein the transparent polymer film layer is produced by shaping a material resin into a film and then stretching.

24. (Currently amended): The method according to claim 17 or 19, wherein the transparent polymer film layer and the birefringent layer are laminated, and then the laminate is stretched or shrunk.

25. (Previously presented): A liquid crystal panel comprising a liquid crystal cell and an optical member, wherein the optical member is disposed on at least one surface of the liquid crystal cell, and is the polarizing plate according to claim 9.

26. (Previously presented): The liquid crystal panel according to claim 25, wherein the liquid crystal cell is at least one selected from the group consisting of an STN (Super Twisted Nematic) cell, a TN (Twisted Nematic) cell, an IPS (In-Plane Switching) cell, a VA (Vertical Aligned) cell, an OCB (Optically Compensated Birefringence) cell, a HAN (Hybrid Aligned Nematic) cell, and an ASAM (Axially Symmetric Aligned Microcell) cell.

27. (Previously presented): A liquid crystal display comprising a liquid crystal panel according to claim 25.

28. (Previously presented): A self–light–emitting display comprising the polarizing plate according to claim 9.

29. (Previously presented): An organic EL display comprising the polarizing plate according to claim 9.

30. (Currently amended): The optical film according to claim 1 or 3, wherein the transparent polymer film layer is a monolayer, the transparent polymer film layer has an in-plane retardation of higher than 0 and not more than 50 nm.

31. (Currently amended): The method according to claim 17 or 19, wherein the transparent polymer film layer is a monolayer, the transparent polymer film layer has an in-plane retardation of higher than 0 and not more than 50 nm.